

Amendments to the Claims:

Please amend the claims as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A sensor comprising  
a cantilever having a position,  
a first mirror being arranged on said cantilever,  
an optical resonator having a length that is dependent on the position of the cantilever,  
a lens assembly for focusing light onto the cantilever and having an output surface facing the cantilever,  
wherein  
the position of the cantilever depends on a parameter to be measured,  
said output surface is concave and forms a second mirror, and  
said resonator is formed between said first and second mirror.
2. (Previously Presented) The sensor of claim 1 wherein said output surface is substantially parallel to impinging wavefronts of a standing optical wave within said resonator.
3. (Currently Amended) ~~The sensor of claim 1~~  
A sensor comprising  
a cantilever having a position,  
a first mirror being arranged on said cantilever,

an optical resonator having a length that is dependent on the position of the cantilever,

a lens assembly for focusing light onto the cantilever and having an output surface facing the cantilever,

wherein

said lens assembly comprises an output lens having a convex first face and a concave second face, wherein said second face forms said output surface,

the position of the cantilever depends on a parameter to be measured,

said output surface is concave and forms a second mirror, and

said resonator is formed between said first and second mirror.

4. (Previously Presented) The sensor of claim 3 wherein said lens assembly comprises an input lens for projecting a divergent incoming light field onto said output lens.

5. (Previously Presented) The sensor of claim 1 further comprising an optical fiber wherein said lens assembly projects an end of said optical fiber onto said cantilever.

6. (Previously Presented) The sensor of claim 1 wherein said output surface is coated with a reflective coating.

7. (Previously Presented) The sensor of claim 1 wherein said cantilever is coated with a reflective coating.

8. (Previously Presented) The sensor of claim 1 wherein said light is not broken at the output surface.

9. (Previously Presented) The sensor of claim 1 wherein said cantilever is a lever being fixed at a first end and deflectable at a second end.

10. (Previously Presented) The sensor of claim 1 wherein said resonator has a loss of less than 20% per round trip.

11. (Previously Presented) The sensor of claim 1 wherein said lens assembly is mounted to a positioning device for positioning a light spot on different parts of the cantilever.

12. (Previously Presented) A scanning force microscope comprising the sensor of claim 1.